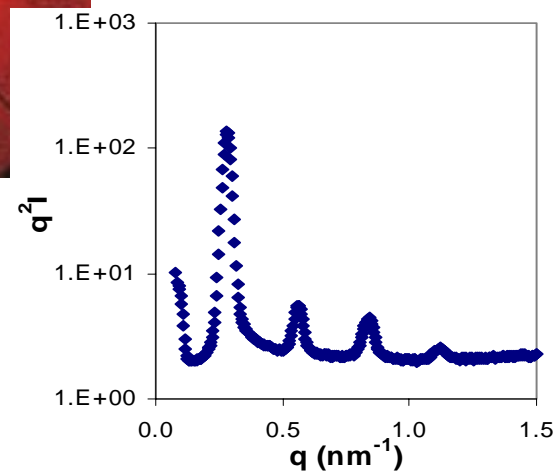
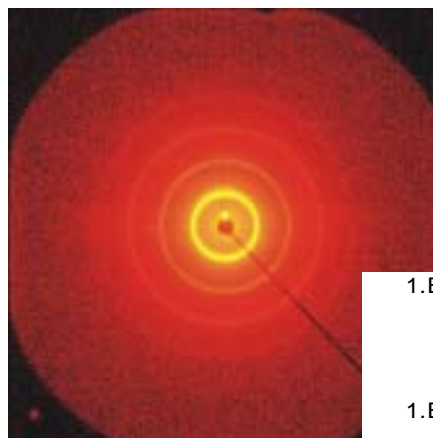
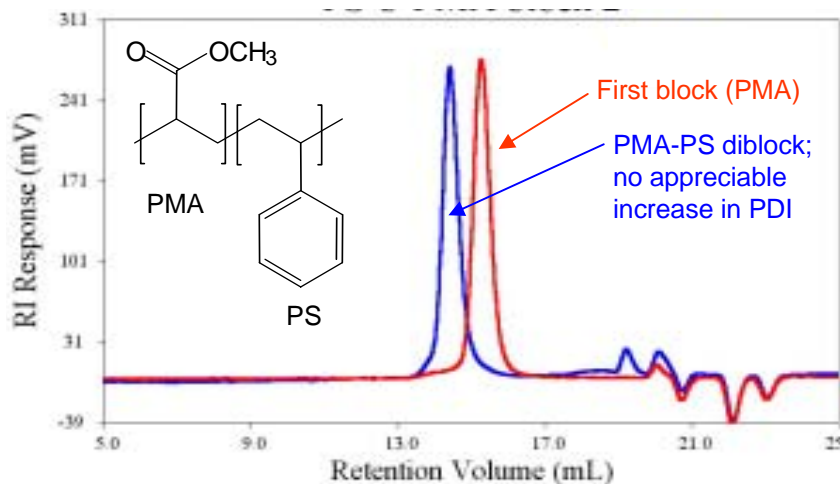


CAREER: An Integrated Research and Education Program for Engineering Functional Block Copolymers

Yueh-Lin (Lynn) Loo, University of Texas at Austin
DMR-0348339

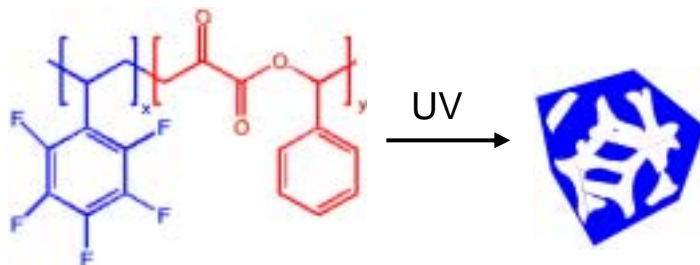
Research: This research seeks to address the phase behavior and the structure function interrelationships of functional block copolymers uniquely derived from living free radical polymerization techniques. Our research will focus on two classes of materials: polymers containing fluorinated blocks and concentrated polyelectrolyte block copolymer solutions and gels.

Since we began this work (February 2004), second-year graduate student **Tracy Bucholz** has synthesized and characterized block copolymers by atom transfer free radical polymerization:



NMR and SEC analyses indicate that block copolymer contains 45.6 vol% PMA

Future work to focus on:

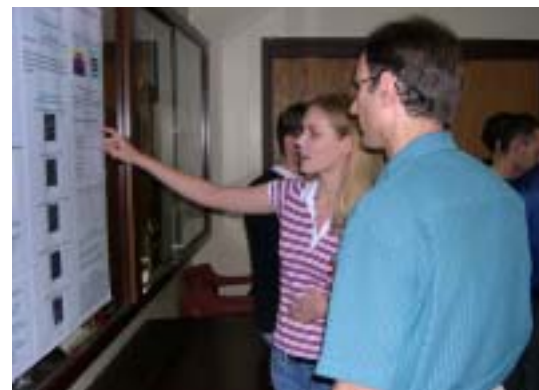


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Education and Outreach: Tracy Bucholz is carrying out her PhD thesis research under this grant. I am scheduled to pick up two additional graduate students (Kyle Guice, NSF graduate fellow, and the other TBD) for this project. My group currently consists of a post-doctoral associate, 4 chemical engineering graduate students, and 3 undergraduates. A Westwood High School student, Miriam Kalk, spent this past summer carrying out research in our laboratories.

Collaborator, Joerg Schulze and I received a joint grant from the ONR International Office to organize a summer short course on solid-state electronics. The course provided members of my research group with basic solid-state physics background to facilitate their research in organic electronics.



Chemical engineering undergraduate, **Shannon Mitchell**, presenting her research, carried out in our laboratories, to Prof. Keith Johnston. Her presentation won first prize in the Undergraduate Research Poster Competition.

Group picture taken during summer short course on solid-state electronics, August 2004. From L to R: **James Norman** (ChE undergraduate); **Dmitry Krapchetov** (BSE in ChE, Texas A&M University, 2003); **Tracy Bucholz** (BSE in ChE and BS in Chemistry, University of Florida, 2003; Department of Homeland Security Graduate Fellow); **Quinn Smith** (PhD in Polymer Chemistry, University of Southern Mississippi, 2002); **Fawad Khan** (ChE undergraduate); **Kimberly Felmet** (BSE in ChE, Cornell University, 1999); **Kwangseok Lee** (Masters in MSE, Seoul National University, 2001); **Prof. Lynn Loo** (PI) ; **Prof. Joerg Schulze** (Institute of Physics, University of Munich Armed Forces); **Kyle Guice** (BSE in ChE, Louisiana Tech University, 2004; National Science Foundation Graduate Fellow).